Increasing Prevalence of Antimicrobial Resistance among Clinical Alcaligenes Species Isolates from Imam Khomeini Hospital in Tehran, Iran

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Background & Objectives: Alcaligenes species have been isolated from various environmental and hospital water sources and also from clinical specimens, including blood, urine, stool and sputum. Alcaligenes spp. are often associated with serious infections such as fatal bacteremia, pneumonia, urinary tract infections, endocarditis and otitis externa. Members of the this genus are usually susceptible to antibiotics commonly used in treatment of infections, but increasing rates of antimicrobial resistance among clinical *Alcaligenes spp*. isolatesis a growing concern.The aim of this study was to determine the prevalence and antimicrobial susceptibility of *Alcaligenes spp*. from blood samples.

Methods: A total of 820 blood specimens were collected from Imam Khomeini hospital in Tehran,during a 1 year period from March 2010 to February 2011. All samples were analyzed for isolation and identification of bacteria. Antimicrobial resistance pattern to different antimicrobial agents were also performed using disk diffusion methods.

Results: 195 (23%) *Alcaligenes spp*. isolate from blood sample identified. All the isolates were susceptible to Ciprofloxacin and Co-trimoxazole. Also high susceptibility rates to Imipenem (94%) and Gentamicin (89%) were documented. Resistance of *Alcaligenes spp.* to other antibiotics was as follow: Ceftriaxone (60%), Ampicillin/sulbactam (39%), Ceftazidime (33%), Amikacin (29%) and Piperacillin- sulbactam (25%).

Conclusion: Further studies are needed to standardize microbiologic methodsologies for susceptibility testing of *Alcaligenes spp.* However the antimicrobial susceptibility profile of Alcaligenes spp. demonstrated that this organism is highly susceptible to Ciprofloxacin, Co-trimoxazole, Imipenem and Gentamicin. Also, according to this study, antimicrobial resistance to Ceftriaxone, Ampicillin/sulbactam, Ceftazidime, Amikacin and Piperacillin-sulbactam is increasing among Alcaligenes spp isolates. Therefore antimicrobial therapy against this uncommon opportunistic pathogenes should be performed by an awareness of its antimicrobial susceptibility profile.

Keywords: Alcaligenes Species; Antimicrobial Resistance; Susceptibility; Imam Khomeini Hospital